REMARKS

Reconsideration of this application, as amended, is respectfully requested.

In the Office Action, the Examiner rejected claims 1-5 and 21-25 under 35 U.S.C. § 103(a) as being obvious over Ottosson et al. in view of Popovic, in view of Zhou et al. The applicant submits that the features alleged by the Examiner to be present in each of the cited references are not disclosed in those references and, therefore, the hypothetical combination of Ottosson, Popovic and Zhou would not result in the applicant's invention as recited in each of currently pending claims.

The present invention is directed to a cell search method of performing a base station search. The method identifies spreading timings of a plurality of base stations located in the vicinity of a mobile station. The method also identifies spreading codes used by the base stations that are different for each base station. The method comprises the steps of determining correlation values between received signals and a spreading code shared among the base stations to determine a correlation value profile. Peak values detected from the correlation value profile and peak timings at the time of the peak values are used to detect spreading timings of the base stations. Spreading codes are also identified that differ for each base station.

All the independent claims contain the above method steps or corollary apparatus. In addition, Claims 1, 2, 3, 4, 21, 22, 23 and 24 include the step of generating autocorrelation patterns. In claims 1 and 21, the autocorrelation pattern is generated with the center at the obtained spreading timing of a base station and with the center at the peak timings at the time multipath occurs, based on an autocorrelation pattern that has been found in advance from the spreading code shared among the base stations. Claims 2, 3, 22 and 23 recite that the autocorrelation patterns are generated with the center at the obtained spreading timings of base

station, while claims 4 and 24 recite that the autocorrelation pattern is generated with the center at a peak timings at the time multipath occurs. In addition, claims 5 and 25 recite performing a path search process using the detected spreading timings and the spreading codes that differ for each base station and that have been identified to detect peak timings at the time multipath occurs. None of the prior art references disclose these features.

The Examiner contends that Popovic discloses a cell searcher in which an autocorrelation pattern is generated with the center of the obtained spreading timing of the base station and the center at the peak timings at the time multipath occurs, based on an autocorrelation pattern that has been found in advance, the spreading code being shared among the base stations, citing column 3, lines 65 through column 4, line 11. However, Popvic discloses autocorrelation values at zero and non-zero time shifts. There is no disclosure of generating an autocorrelation pattern with the center at the obtained spreading timing of a base station and/or the center at the peak timings at the time multipath occurs.

Moreover, the Examiner cited Ottosson as disclosing subtracting each of said autocorrelation patterns from said correlation value profile, citing column 9, lines 26-33. However, Ottosson discloses precomputed autocorrelations not "generated" autocorrelations. In addition, Ottosson does not disclose autocorrelation patterns .

In addition, the Examiner cites Zhou as disclosing the step of performing a path search process using the detected spreading timings and the spreading codes that differ for each base station and that have been identified to detect peak timings at the time multipath occurs, citing column 5, lines 59-67. While Zhou discloses defining a short code that differs at each base station, there is no disclosure of using codes and timings for detecting peak timings. Moreover,

there is no teaching or suggestion in the cited references of "subtracting peak values caused by multipath from said correlation value profile".

Thus, the hypothetical combination of the cited references would not result in the invention as recited in claims 1-5 and 21-25.

In the Office Action, the Examiner also rejected claims 6-20 and 26-40 under 35 U.S.C. § 103 (a) as being obvious over Ottosson in view of Popovic and further view of Zhou and further in view of Aramaki. Claims 6 and 26 recite the step of performing a process of masking said correlation value profile such that timings of an autocorrelation pattern with the center at the detected spreading timing and the timings of an autocorrelation pattern with the center at the peak timing at which a multipath is present, are not subject to a cell search. Claims 7, 8, 9, 27, 28 and 28 recite the step of performing a process of masking the correlation value profile such that timings of an autocorrelation pattern with the center at the detected spreading timing are not subject to a cell search and claims 7, 9,10, 27, 29 and 30 recite the step of performing a process of masking the correlation value profile such that peak timings at the time multipath occurs are not subject to a cell search.

The Examiner cites Aramaki as disclosing a cell searcher that discloses a process of masking a correlation value profile such that timings of an autocorrelation pattern with the center at the detected spreading timing and the timings of autocorrelation pattern with the center at the peak timing at which a multipath is present are not subject to a cell search, citing column 4, lines 13-40. However, Aramaki does not disclose a process of masking the correlation value profile as recited in claims 6-10 and 26-30. In contrast, Aramaki discloses a masked symbol timing generation section for detecting masked symbol timing. Thus, Aramaki discloses a masked symbol timing process. There is no teaching or disclosure that Aramaki's masked symbol timing

process performs masking autocorrelation value profiles such that timings of an autocorrelation pattern and/or peak timings at the time multipath occurs are not subject to a cell search. Aramaki teaches the use of a multiplexed pattern of masked symbols spread with two short codes for detecting a long code phase. See column 3, lines 54-57. This is confirmed in the section cited by the Examiner, see column 13, lines 36-40.

Thus, the hypothetical combination of the cited references would not result in the invention as recited in claims 6-20 and 26-40.

The present invention, as recited in claims 1-40 comprises the steps of generating an autocorrelation pattern with the center at the spreading timing of a base station, autocorrelation patterns with the center at the peak timings at the time multipath occurs, and/or peak timings at the time multipath occurs. New claims 41, 42 and 43 also recite the same steps. These steps are not disclosed in any of the cited references.

The present invention focuses attention on an autocorrelation, and eliminates an adverse influence of the autocorrelation sidelobes to provide a means for searching a second base station, and further base stations quickly.

Ottosson does not focus attention on a generated autocorrelation, but instead only mentions precomputed autocorrelations in col. 9, lines 31-33. Although Ottosson performs interference cancellation (see column 5), this process is performed for eliminating an adverse influence of the interference. It appears that the Ottosson process could be performed in consideration of cross-correlation between different codes.

Popovic discloses a code architecture that has small autocorrelation (see columns 21-22). However, Popovic does not disclose a means for eliminating an adverse influence of the

autocorrelation sidelobes in the code architecture that has large autocorrelation as the current W-CDMA.

Zhou discloses a common multistage cell search (see column 5). However, Zhou does not disclose a method for eliminating an adverse influence of the autocorrelation sidelobes.

Thus, because none of the cited references address the problem of eliminating adverse influence of the autocorrelation sidelobes, there would have been no suggestion or motivation for one of ordinary skill in the art to combine the cited references as alleged by the Examiner.

In view of the above, it is respectfully submitted that all of the claims pending in the application contain patentable subject matter and the Notice of Allowance is respectfully solicited.

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